

INU

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Assignment =>

Clinical  
Medicine.

Submitted to =>

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Radiology 4th  
Semester

(1)

Q No: 1

Ans:

→ Role of Nuclear  
Medicines in  
treatment and  
Diagnosis of  
Thyroid Disease.  
\*\*\*

→ The nuclear medicine  
is directly involve  
in treatment and  
diagnosis of Thyroid  
Disease.

It require an

(2)

Understanding of  
pathophysiology and  
management of Thyroid  
disease :-

⇒ Diagnosis :-

→ Thyroid uptake and  
imaging principle  
nuclear test in  
Thyroid disease  
may be used as  
following.

⇒ Differential diagnosis  
of hypothyroidism

→ very low nuclear  
medicines use are

(3)

Suggested to diagnose destructive thyroiditis.

a self limited disorder.

→ Where as normal or elevate uptake is consistent with toxic nodular goiter and grave, disease.

→ Scintigraphic characteristics also help to differentiate b/w nodular and graves disease.

(4)

## b) Function of Thyroid nodules:-

→ Fine needle aspiration biopsy with cytological examination is used routinely to assess for malignancy in thyroid nodules with scintigraphy assistance before FNAB.

→ "Hot" nodules are benign and do not require FNAB.

→ "Cold" nodules may be malignant.

(5)

⇒ Scintigraphy :-

→ Scintigraphy is a diagnostic technique in which a two dimensional pictures of internal body tissue is produced through the detection of radiation emitted substance after administered into the Body.

(6)

⇒ Differential diagnosis  
of congenital  
Hyperthyroidism :-  
★

→ Scintigraphy combine  
with ultrasound

→ Examination may be  
used to identify  
Such condition as:

(★) Thyroid agenesis,

(★) dysmorphogenesis

(★) incomplete Thyroid  
descent.

(7)

## ⇒ Treatment of Thyroid with nuclear medicine

→ The treatment of Graves disease and toxic nodular disease occurs with iodine but it has high side effects.

→ Radioactive iodine therapy is a nuclear medicine for an overactive thyroid a condition called hyperthyroidism.

→ also may be used for thyroid cancer.



(8)

→ The thyroid is gland produces two metabolic hormones when it is over active produce of too much hormones

→ I-(131) an isotope of iodine that emits radiation is used for medical purpose.

→ when small dose of I(131) is swallowed it absorbed into blood stream in GI tract and concentrated from

(9)

from blood by  
the Thyroid Gland  
where it begins to  
damaging gland's cells

→ I-131 may also  
used to treat  
Thyroid cancer.

→ As the cell no  
reduces over secretion  
of hormones are  
decreases.

(Q) → Radioactive iodine

treatment : may

occasionally aggravate

(\*) hyperthyroidism

(\*) Graves.

(10)

(\*) Ophthalmopathy

(\*) Air way obstruction  
caused by large  
nodular goiter.

→ Radioactive Iodine  
in people with  
toxic multi-nodular  
goiter, radioactive  
iodine may be  
necessary.

→ The Radioactive  
iodine ingested orally  
and then started  
travels to your thyroid  
through blood stream  
where it destroys the  
excess tissue.

(12)

## b) "Radioactive dose"

Radioactive dose  
cure of hyperthyroidism  
with single Iodine  
treatment is desirable.

⇒ Such factors:

→ Large goiter severe  
hyperthyroidism and  
prior propylthiouracil  
therapy may contribute  
to treatment failure.

⇒ Informed patient

→ Discussion in detail  
with patient regarding  
the clinical risks,

(12)

outcomes and side

effects of income

(131) is critical

Component of Successful  
management

== xx == xx == xy ==  
== xx == xx == xx ==

(13)

Q No: 2

Ans:

⇒ Polycystic  
Kidney:-

→ Polycystic kidney is characterized by abnormal proliferation of renal tubular epithelial cells.

→ which manifest as cyst that increase gradually in size and numbers.

(14)

→ Leading to massive kidney enlargement

→ progressive decline of renal function.

→ It is common to encounter patient with a single renal cyst or multiple ones as an incidental finding.

→ Adult polycystic kidney disease (PKD) is a common condition with prevalence of approximately 1:1000

(15)

## ⇒ Clinical features

(\*) → Vague discomfort in  
loin or abdomen  
due to increasing mass  
of renal tissue.

(\*) → Acute loin pain

(\*) → Renal colic due  
to haemorrhage into  
cyst.

(\*) → Hypertension.

(\*) → Haematuria.

(\*) → Urinary tract or  
cyst infection

(\*) → Renal failure.



(16)

## ⇒ Types of PKD

1) → Autosomal

Dominant polycystic  
Kidney Disease.  
(ADPKD).

2) → Autosomal

Recessive polycystic  
Kidney Disease.  
(ARPKD).

3) → Glomerulocystic  
Kidney Disease.

(GCKD).

→ Every type of  
PKD is explained  
as following.

(17)

1) → Autosomal Dominant  
polycystic kidney  
Disease (ADPKD):

→ transmitted by  
Parent to child  
by dominant inheritance

→ only one copy of  
the abnormal gene  
is needed to  
cause the disease.

2) → Autosomal Recessive  
polycystic kidney  
Disease: (ARPKD):

→ transmitted from  
parents to child

(18)

by recessive inheritance.

→ It tends to be very serious and is often fatal in the first few months of life.

→ It is extremely rare.

→ It occurs in 1 out of 25,000 people.

3) → Acquired Cystic Kidney Disease (ACKD) :-

→ It is often associated with kidney failure and dialysis.

(19)

→ People with ADKD usually seek help because they notice blood in their urine.

→ This is because the cyst bleed into the urinary system which discolors urine.

⇒ Causes of  
polycystic kidney

→ It is passed down through families usually in autosomal dominant trait.

(20)

→ If one parent carries the gene the children have a 50% chance of developing the disorder.

## 2) Causes of Autosomal Dominant PKD:

→ Occur in both children and adult but it is much more common in adults.

→ Symptoms often do not appear until middle age.

→ It affects nearly 1 in 1,000 Americans.

(21)

→ The actual number may be more, b/c of some people do not have symptoms.

3) Causes of autosomal recessive:

→ It appear in infancy

→ This form is much less common than Autosomal dominant PK's but it tend to be very serious and gets worse quickly.

→ It can cause serious lung and liver disease.

(27)

End stage kidney disease and it usually cause death in person.

→ person with PKD have many clusters of cysts in the kidney.

→ A family history of PKD increase risk for the condition.

→ PKD associate with following condition.

→ Aortic aneurysms

→ Brain aneurysms

→ cyst in liver, pancreas and testes.

(23)

→ Divertical of the  
Colon

→ As half of people  
with PKD have cysts  
on their liver.

⇒ Sign and Symptoms.

→ Most people do  
not have develop  
symptoms until they  
are 30 to 40 yrs old.

→ Back or side pain

→ increase in size  
of abdomen.

→ Blood in urine

frequently bladder



(24)

- frequently kidney infection.
- Headache related to high BP.
- Pounding in chest.
- About 25% of PKD have floppy valve in heart and pounding on chest as well as chest pain.

## ⇒ Diagnosis of PKD

- Ultrasound.
- CT Scan.
- MRI.
- Gene linkage analysis.

(25)

## ⇒ Treatment of PKD:-

→ At present there is no cure for PKD.

→ Many supportive treatment can be done to help to prevent or slow down loss of kidney function. These include:

→ Careful control of blood pressure.

→ promote treatment with antibiotics of bladder or kidney infection.

(26)

→ Exercise

→ weight control  
and reduce salt  
intake.

→ Smoking cessation

→ Medication to  
pain control.

⇒ Conclusion:-

→ It is difficult to  
talk about this

disease as family

There are qualified

Counsellors who

understand its inheritance

pattern and implication  
of such a diagnose

(27)

→ Counsellors can assist families to retain maximum productivity and acceptance whilst coping with what is difficult and challenging situation.

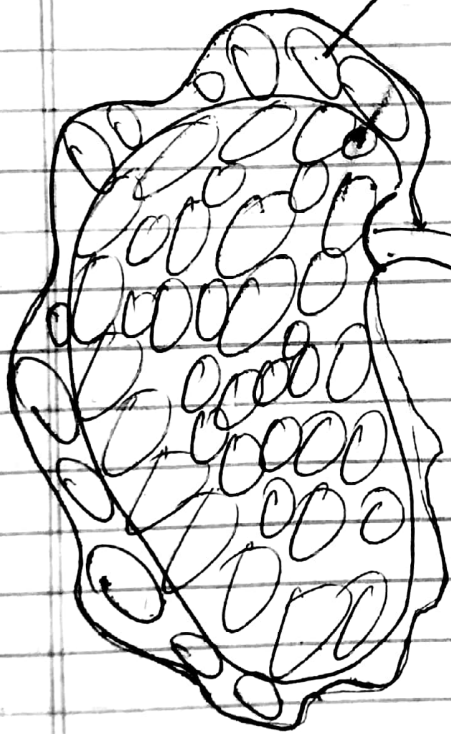
→ It is important that patient discuss their disease concerns with doctors.

== xx == xx ==



Normal  
Healthy  
kidney

→ ureter



→ cyst

polycystic  
kidney

→ ureter

xx

xx

(28)

Q No: 3

Ans:

Lithotripsy:-

→ Lithotripsy is a medical procedure that use shock waves or laser to break down stone in kidney, Gall bladder or ureter.

→ This lithotripsy procedure is happen when the stone cannot pass or medication cannot help.

(29)

→ "Lithotripsy" treat  
Kidney stones by

Sending focused  
ultrasonic energy or  
Shock waves. directly  
to stone first  
located with

fluoroscopy or ultrasound.

The Shock waves

break large stones

into smaller stones

that will pass

through urinary system.

(30)

⇒ Types of lithotripsy

There are two types of lithotripsy.

(1) → Laser lithotripsy  
or FURL

(Flexible urethroscopy  
and laser lithotripsy)

2) → ESWL

(Extracorporeal

Shock wave lithotripsy)



(31)

## (1) ESWL:-

→ The abbreviation of ESWL is.

"Extracorporeal Shock wave lithotripsy"

→ It use shock wave to break down the stone.

→ During this procedure the surgeon will use machine called "Lithotripter" to aim sound waves directly at stone throughout the body.

(32)

→ Sound waves break down the stone into small pieces.

→ Procedure take 1 hour.

→ After treatment a person should

pass stone particles over several days or weeks through urination.

2) FURSL:

→ The abbreviation of FURSL is

"flexible ureteroscopy and laser wave lithotripsy"

(33)

→ In this FURS procedure involve using an endoscope to treat stone in ureter.

→ Endoscope is flexible tube with light and camera that help doctor see inside organ or body cavity.

→ Doctor can see the stone using endoscope.

→ use laser to break down the stone.

→ procedure take 30 min.

(34)

→ The broken stone fragments should pass easily through urine. ✓

⇒ The lithotripsy is "Therapeutic" tool.

⇒ General criteria for performing Lithotripsy: ✓

The general criteria for performing lithotripsy are following. ✓

(35)

1) → Should be asked to remove all objects which interfere with procedure.

2) → Ask to remove cloth, jewelry.

3) → Should be asked to wear gown.

4) → You may receive sedative or anesthetic agent to ensure that you remain still and pain-free during procedure.

5) → An intravenous (IV) line should be inserted in your arm or hand.

(36)

7) → After the Stone has been located with fluoroscopy or ultrasound, you will be positioned for the most direct access to stone.

8) → If you are awake during procedure you may experience a light tapping feeling on your skin.

9) → The Stone should be monitored by fluoroscopy or ultrasound during procedure.

(37)

(10) → A Stent may be placed in ureter to help the Stone fragments pass.

11) → A Sequence of Shock wave will be created to shatter the Kidney Stone. ✓

12) → Once the Stone fragments are small enough to pass through the urinary system, The procedure will end.

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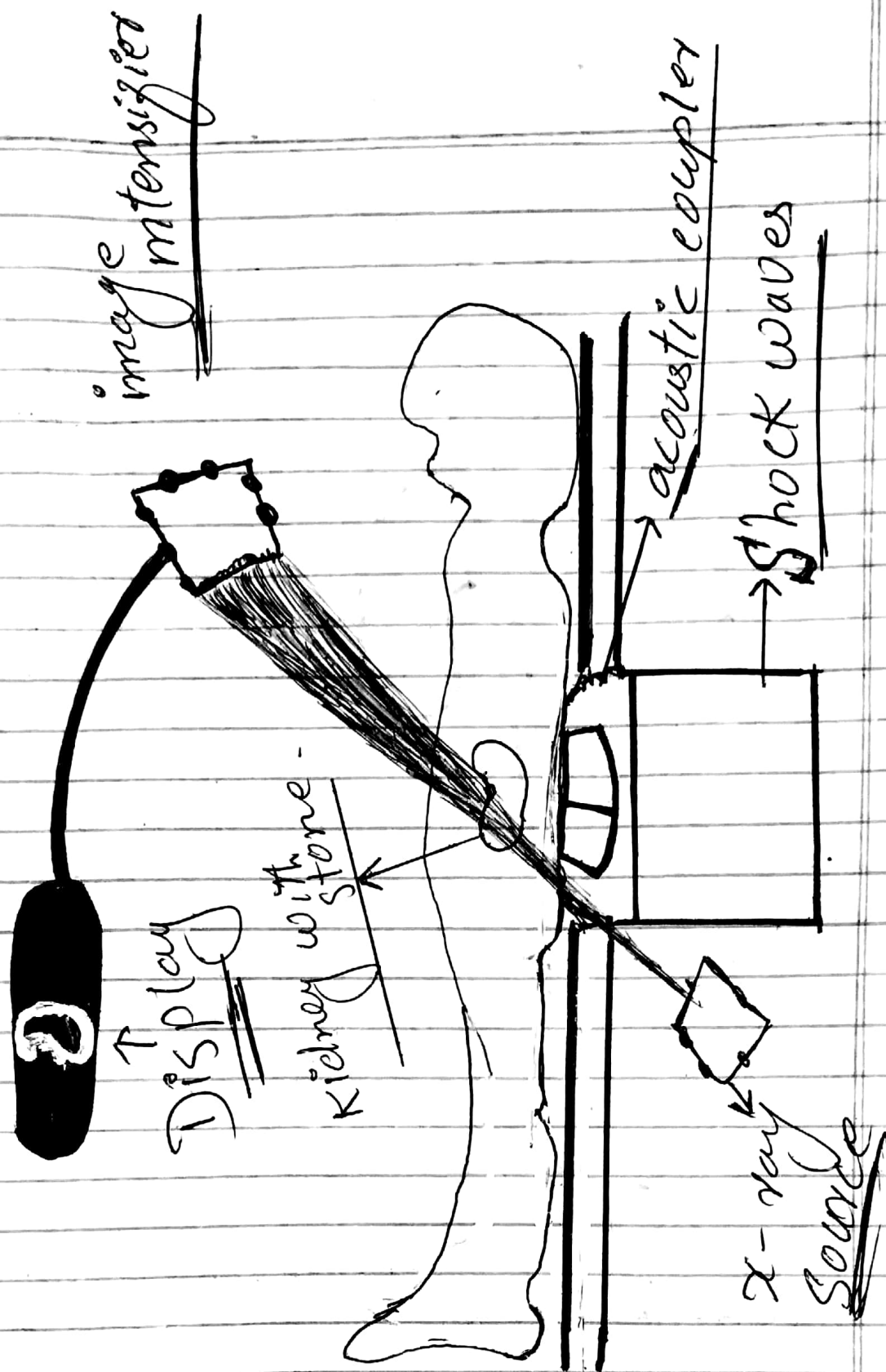


Fig:- Lithotripsy



(38)

Q No: 4

Ans:

ALL Terms used  
in Medical Dictionary  
with Suffix "Otomy"

"Otomy" ⇒ means

"Cutting into parts  
of body."

⇒ There are many  
terms with  
suffix otomy are  
following.

(39)

## (1) Lobotomy

Cutting or scraping away most of the connection to and from prefrontal cortex, the anterior part of the frontal lobes of brain.

## 2) Osteotomy ::

→ A bone is cut to shorten or lengthen it or to change the alignment.

(40)

### 3) Phlebotomy::

→ An incision in a vein with a needle.

### 4) Pulpotomy::

→ Removal of a portion of pulp including the diseased part.

### 5) Thoracotomy::

→ Incision into the pleural space of the chest.

### 6) Myotomy::

→ Procedure in which muscle is cut.

(41)

7) Aminotomy::

→ An incision made to accelerate labor.

8) Androtomy::

→ Dissection of the human body.

9) Coditoidotomy::

→ Plastic surgery of clitoral hood.

10) Coeliotomy::

→ A large incision through the abdominal wall to gain access into the abdominal cavity.

(42)

11) Bilateral Cingulotomy:

→ Psychosurgery, treatment for depression and addiction.

12) Bronchotomy:

→ A procedure that ensures there is an open airway b/w a patient lung and the outside world.

13) Hymenotomy:

→ Surgical removal or opening of the hymen.

(43)

(14) Hysterotomy ::

→ Incision in the uterus, and is performed during a Caesarean Section.

(15) Laminotomy ::

→ The partial removal of Lamina.

(16) Laparotomy :-

→ Large incision through the abdominal wall to gain access into abdominal cavity.

(44)

## (17) Episiotomy :-

→ Surgical incision of perineum and posterior vaginal wall

## (18) Fasciotomy :-

→ Surgical procedure where the fascia is cut to relieve tension or pressure commonly to treat resulting loss of circulation to an area of tissue or muscle.

(45)

## 19) Radial Keratotomy

→ A refractive surgical procedure to correct myopia.

## 20) Sphincterotomy:-

→ Treating mucosal fissures from anal or sphincter.

== xx == xx == xx ==



(46)

Q No: 5

Ans:

⇒ Urinary Tract  
Infection:

→ It is the infection in any part of your urinary system, kidney bladder, ureter and urethra.

→ This type of infection is caused by microbes which are seen only in microscope.

(47)

→ Most urinary tract infection caused by Bacteria.

→ Some urinary tract infection also caused by fungi and virus.

→ The most UTI's only involve the urethra and bladder in "Lower tract"

→ UTI's can also be involve the ureter and kidney in "Upper tract."

→ Upper tract UTI's are more rare than lower tract UTI's.

(48)

→ Women have more risk of developing of UTIs than men.

⇒ Causes of UTI's

→ They caused by

(\*) Bacterium Escherichia coli.

↳ usually found in Digestive system.

(\*) Chlamydia bacteria.

(\*) Mycoplasma bacteria.

↳ Both of these can infect the urethra but not the bladder.

## ⇒ Risk factors of UTIs :-

→ Over 50% of all women with experience at least one UTI during their lifetime

→ 20 - 30% experiencing recurrent UTIs.

→ Diabetes.

→ Sexual intercourse

especially if more frequent intense

and new with multiple or new partners.

(50)

- Poor personal hygiene
- Having urinary catheter.
- Problem emptying the bladder completely
- Blocked flow of urine.
- Menopause.

## ⇒ Symptoms of UTIs

Urinary tract infection  
Symptoms depend upon:

- (\*) age.
- (\*) Gender.
- (\*) Type of infection

(51)

→ Strong and frequent urge to urinate.

→ Burning with urination.

→ Increase frequency of urination without passing much urine.

→ Cloudy urine

→ Bloody urine.

→ Urine that looks like cola or tea.

→ pelvic pain in women

→ Rectal pain in men.

→ Urine that has strong odour.

(52)

## Upper UTI symptoms

- Fever
- Vomiting
- Nausea.
- Chills.
- pain and tenderness  
in upper back and  
sides.

## ⇒ Types of UTI

Three types

(1) → Acute pyelone-  
-phritis.

(2) → cystitis.

(3) → Urethritis.

(53)

## ① → Acute Pyelonephritis

- Kidney infection is called Pyelonephritis.
- It is a sudden and severe kidney infection.
- inflammation occurs in Nephron.

### ⇒ Symptoms:

- Upper back pain.
- Side pain.
- High fever.
- Chills.
- Fatigue.
- mental changes.
- Shaking.



(54)

2) → Cystitis :-

→ A bladder infection called cystitis.

→ It is a specific infection in which inflammation occurs in bladder.

→ Bacteria makes its way into bladder.

⇒ Symptoms :-

→ Lower back pain

→ Blood in urine.

→ painful urination

→ Low fever.

→ pressure and cramping in abdomen.

(55)

### 3) → Urethritis :-

A urethra infection called urethritis.

→ Inflammation occurs in urethra called urethritis.

### Symptoms :-

→ Discharge.

→ Burning with urination.

### → Diagnosis of

### UTI :-

→ Testing urine sample to assess the presence.

→ White blood cells and red blood cells and

(56)

Bacteria.

→ Diagnostic image

This involve assessing  
the urinary tract using:

(\*) → MRI

(\*) → Ultrasound

(\*) → CT-Scan.

→ Urodynamics

Cystoscopy

↳ To examine the  
bladder and urethra  
with a camera  
lens.

(57)

⇒ Treatment of UTIs

⇒ Medicines

(★) → Anti-biotics.

(★) → Levofloxacin

(★) Ciprofloxacin.

→ Drink lot of water.

⇒ Un-complicated UTI:

→ Can be treated with 2-3 days.

⇒ Complicated UTI

→ Treated with Antibiotics

→ B/w 7-14 days.

== xx == xx ==

⇒ Urinary tract  
\* infection.

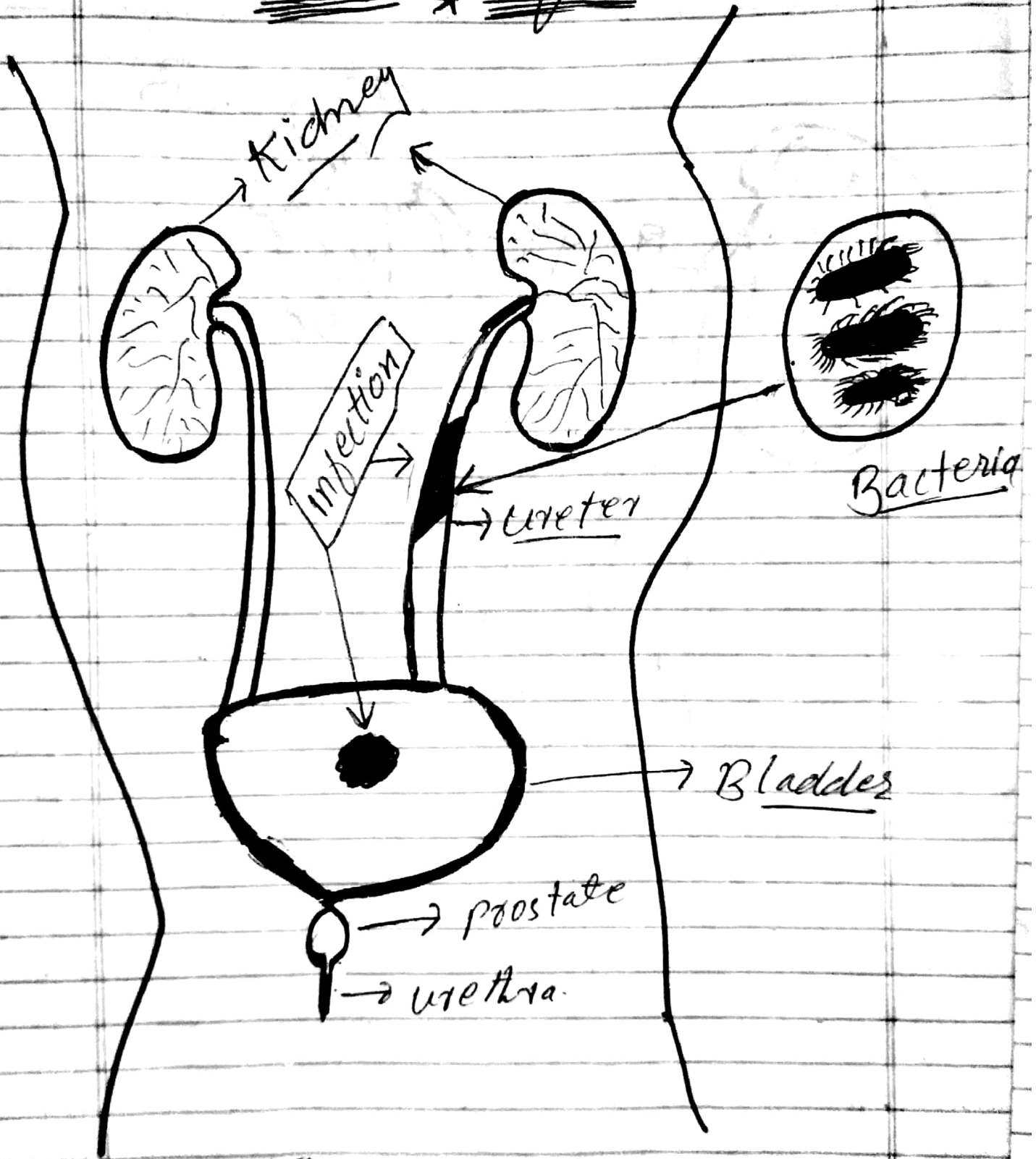


Fig ⇒ UTI

THE END

★ Thank You ★